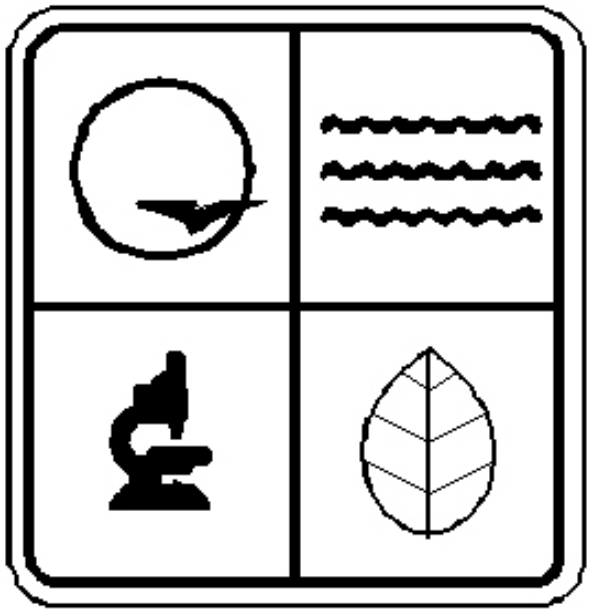
Vichy Reversed Baseline

EDM Calibration Baseline
Maries County, Missouri



Established by

Land Survey Program
Missouri Department of Natural Resources

1986

VICHY EDM CALIBRATION BASELINE

The baseline is located 15 miles north of Rolla, 1.5 miles north of Vichy along the east edge of the old inactive north-south runway on the east side of the Rolla National Airport.

To use the baseline, permission must first be acquired from the F.A.A. Flight Service Office at the airport. After permission is granted, proceed across the main apron, taxiway, northeast-southwest runway, and old inactive north-south runway to the 0-meter point of the baseline. The route is shown on an attached map.

The 0-meter point is 75 feet west of the center of a 2′x 3′ storm inlet, 64 feet northeast of the center of an old 6-inch round runway light base on the east edge of the runway and 25 feet east of the east edge of the runway.

The monuments are Missouri State Land Survey Authority brass discs set in 5″ x 36″ pre-cast concrete posts set flush with the ground. They are stamped with the respective baseline designation and the year 1977. The baseline is oriented in a north-south direction with the 0-meter point on the north end. The baseline runs parallel with the east edge of the north-south runway between the eastern ends of the two existing runways.

The baseline station elevations are as follows:
1375 meter - 348.26m
1225 meter - 346.88m
800 meter - 343.30m
336 meter - 336.48m

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- Upon receipt of a new instrument
- Immediately after each servicing
- Anytime the operator feels the instrument is not working properly
- Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING

- Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

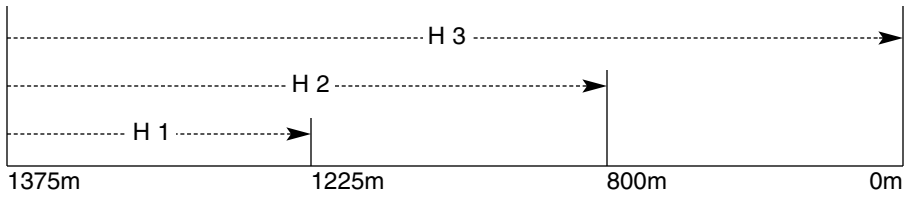
EDM CALIBRATION REPORT – VICHY REVERSED EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

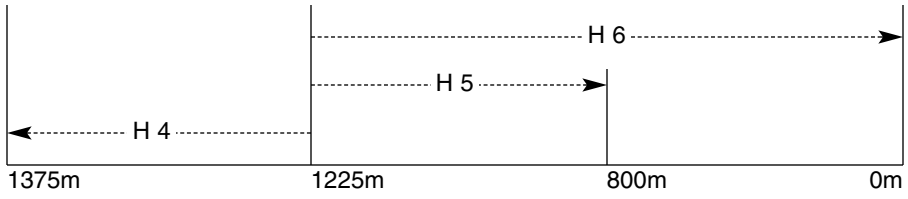
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 1375m



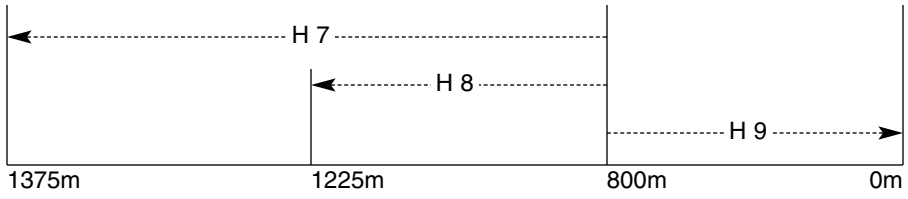
H 1 =	H 2 =	H 3 =	TEMP
H 1 = (149.9923m)	H 2 = (575.0038m)	H 3 = (1374.9230m)	*PRESS

E.D.M. AT 1225m



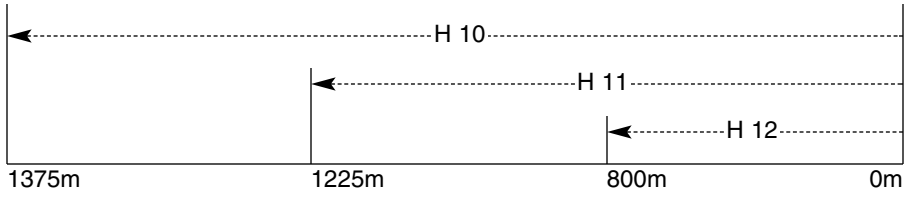
H 4 =	H 5 =	H 6 =	TEMP
H 4 = (149.9923m)	H 5 = (425.0115m)	H 6 = (1224.9307m)	*PRESS

E.D.M. AT 800m



H 7 =	H 8 =	H 9 =	TEMP
H 7 = (575.0038m)	H 8 = (425.0115m)	H 9 = (799.9192m)	*PRESS

E.D.M. AT 0m



H 10 =	H 11 =	H 12 =	TEMP
H 10 = (1374.9230m)	H 11 = (1224.9307m)	H 12 = (799.9192m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

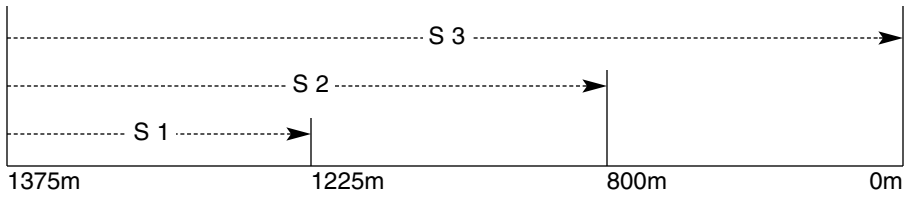
EDM CALIBRATION REPORT – VICHY REVERSED EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

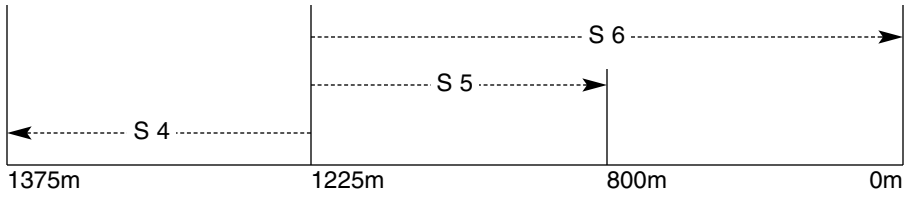
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 1375m



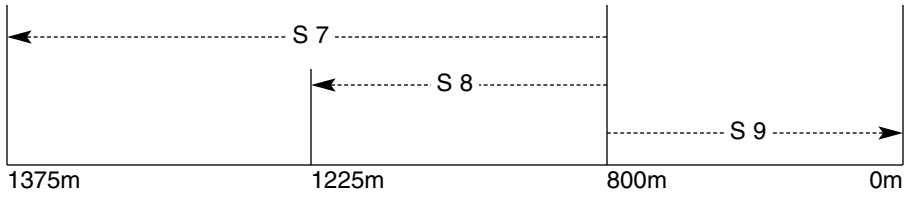
HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 1225m



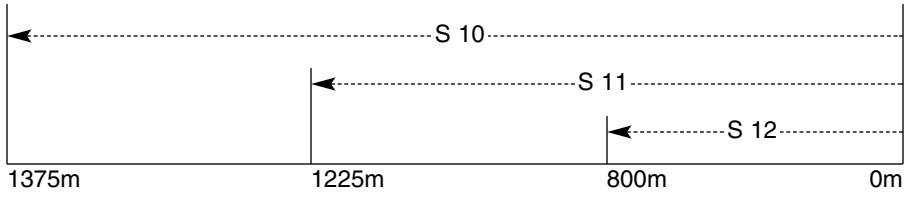
S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 800m



S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 0m

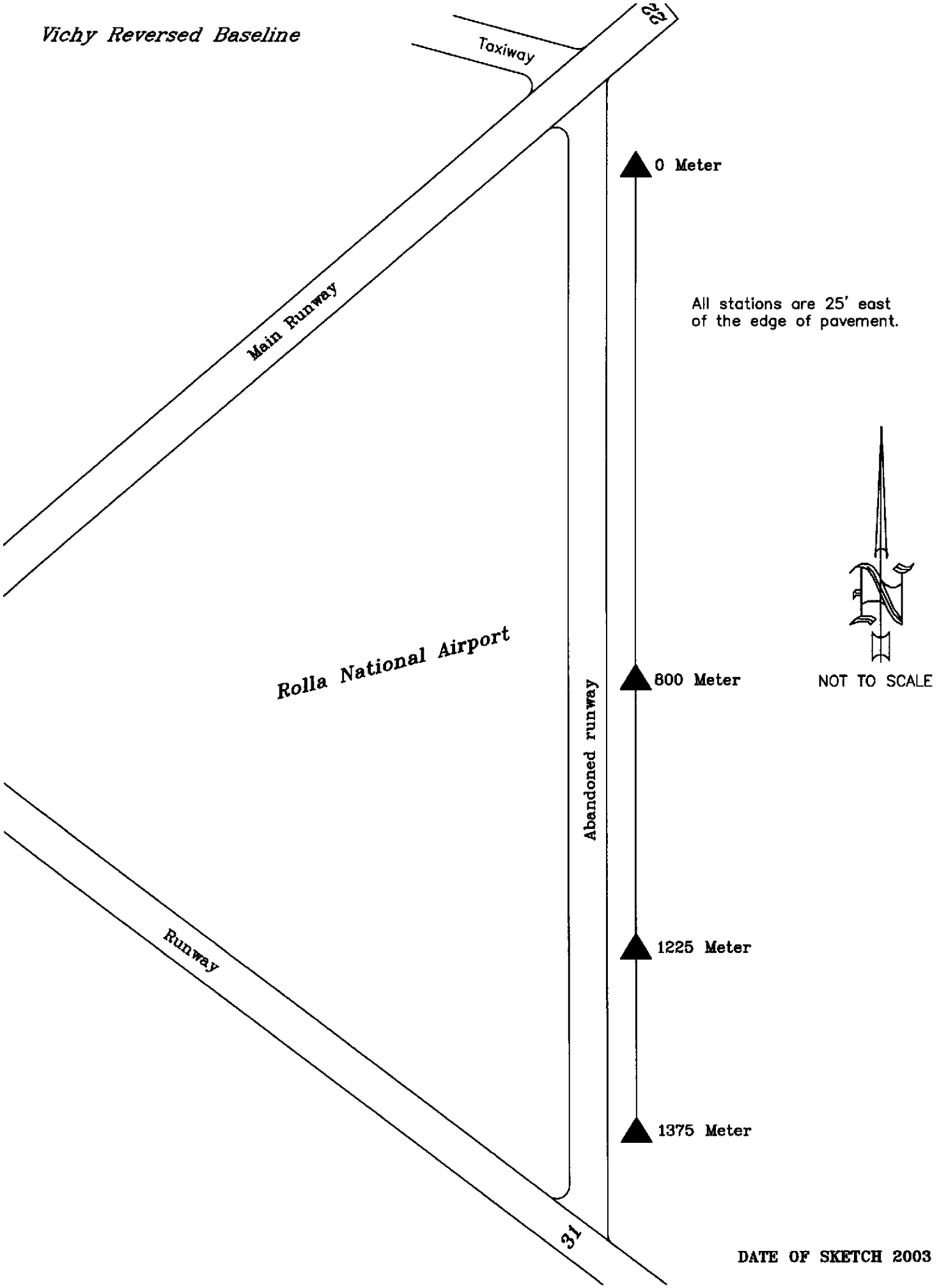


S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments.

1375m = 348.26m 1225m = 346.88m 800m = 343.30m 0m = 336.48m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.


Vichy Reversed Baseline
Taxiway
22
0 Meter
Main Runway
All stations are 25' east
of the edge of pavement.
Rolla National Airport
Abandoned runway
800 Meter
NOT TO SCALE
Runway
1225 Meter
1375 Meter
31
DATE OF SKETCH 2003